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EXAMINER

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ART UNIT PAPER NUMBER

1654

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19

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 19

Application Number: 09/478,299
Filing Date: January 05, 2000
Appellant(s): SCHENK, JOHN L.

Craig R. Miles
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/07/2002.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

On March 7, 2002, appellant appealed the Final rejection of claims 1-26 and 35. Claims 27-34, 36 and 37 were withdrawn from further consideration by the examiner. Appellant noted this in his response filed 6/25/2001.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

Art Unit: 1654

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows:

The 35 USC 112, second paragraph rejection, was dropped since it was not repeated in the Final rejection.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-26 and 35 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

Art Unit: 1654

Salisbury et al., Physiology of Reproduction and Artificial Insemination of Cattle, 2nd Ed., San Francisco: W. H. Freeman, 1978, pages 442-554.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-26 and 35 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Salisbury et al. taken with Spaulding.

The claims are drawn to a method for the cryopreservation of sperm as in claims 1 and 35 using as an extender the elected extender containing glycerol and a component that maintains osmolality and buffers pH.

Salisbury teaches cryopreservation of bull semen using different extenders including glycerol (page 497) and a component that maintains osmolality and buffers pH such as sodium citrate, Tris, milk, etc. Salisbury also teaches obtaining the sperm sample cooling it to 5°C for 140 minutes (see page 475-see also pages 463-464 for

Art Unit: 1654

additional cooling semen), adding the extender (see page 456, 499), and freezing the suspension of sperm (see pages 471, 494, 495, 503-504). The pH of the extender is 6.5 to 7.0 (page 502 and page 456). See entire reference especially the pages mentioned.

Salisbury does not teach to specifically isolate the sperm using centrifugation and does not teach using flow cytometry to select the sperm sample.

Spaulding teaches to sort sperm for their X or Y characteristic, by flow cytometry and to centrifuge sperm cells to remove seminal plasma proteins, i.e. isolate the sperm, after cooling, see example I.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use flow cytometry to select sperm for a particular characteristic in the method of Salisbury since Spaulding teaches using flow cytometry to sort X from Y sperm. To centrifuge (isolate) the sperm sample of Salisbury after cooling would have been obvious since Spaulding teaches to remove seminal plasma proteins, i.e. isolate the sperm, after cooling.

Since Salisbury uses bull sperm it also would have been obvious to use other mammalian sperm such as equine and porcine since they are also mammalian sperm and would be expected to work well in the process of Salisbury as well. To use different mammalian sperm is well within the purview of the skilled artisan.

A 50% to 90% recovery of sperm from the centrifugation is obvious since one would want to yield as much of the sperm as possible.

The concentration of sperm in said suspension prior to freezing would be inherent to the suspension of sperm.

Art Unit: 1654

The order of the steps of the process of Salisbury might be out of order from the claimed process, but this still is obvious. MPEP 2144.04 IV (C) states that it is *prima facie* obvious to perform in any order steps of a process.

Thus, the claimed subject matter is obvious over the cited references.

(11) Response to Argument

Appellant first argues that the references do not teach any "viable sperm".

This is not well taken since it is clear from the title of Salisbury that he intends to artificially inseminate cattle. Why would one of ordinary skill in the art artificially inseminate with non-viable sperm ? Clearly Salisbury intends for the sperm to be viable.

Spaulding clearly contemplates viable sperm. Spaulding also in his title describes that their invention will increase the probability that offspring will be of a desired sex. Further, on column 5, lines 4-8 of the reference, Spaulding notes that the sex selected semen can be used in fertilizing ova to produce offspring of the desired sex. Clearly, Spaulding also clearly contemplated the use of viable sperm.

Next, appellant argues that there is no motivation in Salisbury to perform the step of "obtaining a selected sperm sample", but Salisbury is clear in stating that the semen is "obtained" and used , see page 450 of Salisbury. Any sperm sample which is

"obtained" is selected. The term "selected" is so broad as to encompass simply obtaining the sperm sample.

Appellant next argues that Salisbury does not disclose any limitation of the invention because he alleges that Salisbury states that it is "impossible to generalize findings" as "one set of conditions may not be acceptable for others". This argument is not understood since Salisbury is clearly teaching that extenders are useful and that there may be variations in extenders but this in and of itself does not negate Salisbury as a pertinent reference in this case.

Appellant then argues that Spaulding does not teach sex selection of sperm but Spaulding is replete with references to such sex selection of sperm, for example see the abstract, col. 2, lines 54-62, col. 4, lines 15-35, col. 5, lines 4-12, example 1. Next appellant argues that Spaulding only teaches a single freezing step but it is clear from the rejection that Salisbury teaches that sperm is well known to be frozen. Spaulding was cited to show the sex selection of the sperm. Salisbury is the primary reference which does show freezing. The fact that Spaulding may only show one freezing step is irrelevant. It still shows a freezing step and such is not the point in question. It is not understood how appellant can construe this to "teach away" from the invention. In fact, since Spaulding was not even relied upon to show a freezing step but appellant points it out, this only supports the arguments that freezing of sperm is known.

Appellant next argues that Spaulding does not teach that sorted sperm cells can be frozen for any purpose. First of all, Salisbury has already established that freezing of

Art Unit: 1654

obtained sperm is known for artificial insemination. Second of all, Salisbury does not have to provide such a teaching because this is not a 35 USC 102 rejection.

In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellant next argues that equine and porcine sperm were not specifically taught but it is clear in Spaulding that 'mammalian sperm' is taught which would encompass equine and bovine sperm. Equine and bovine are well known mammals and it would have been within the purview of the skilled artisan to use sperm from such mammals since it is clearly desirable to artificially inseminate them as well to produce offspring to use in the farm industry.

Appellant argues that claim 25 has not been met, but when one performs the claimed invention it is inherent that such a broad range of recovery be met since the references teach the same process as appellant.

Appellant then argues that with respect to claims 2 and 26 that Salisbury on page 475 states that the frozen sperm has 20 million sperm per dose (of which cite cannot be found by the examiner on page 475 of Salisbury). Appellant has stated that this is the case and as can be seen 20 million per dose falls in the range of claims 2 and 26. Further, Spaulding teaches that 20 million sperm cells are obtained, see col. 9, lines 15-37.

Art Unit: 1654

Appellant next argues that the pH range claimed is not taught but it is clear in Salisbury that it is, see page 455.

Appellant argues that Salisbury only provides teachings as to how to freeze semen which comes with a variety of disclaimers and warnings that "the exact nature of freeze thaw damage is not fully understood", for example. This is the reason why Salisbury uses glycerol. Salisbury clearly wants to produce sperm to artificially inseminate. It is clear how one would make, isolate and freeze the sperm as well as used the sperm for artificial insemination. Appellant once again argues that Spaulding does not teach freezing of the sperm and this was addressed above.

Appellant next states that Salisbury says that dilution of the spermatozoa with simple solutions depresses motility, but as Salisbury also states egg albumin and casein minimize this effect on page 446 of Salisbury.

Appellant next states that there is no disclosure in Spaulding of selecting frozen sperm by flow cytometry. Spaulding does teach flow cytometry for sex selection of sperm (col. 9, lines 15-65) and Salisbury teaches the freezing of the sperm.

Appellant again tries to allege that one extender may not be suitable for one animal as it is for another, but it is clear from Salisbury that the extenders listed do work for many animals in artificial insemination. This argument is not understood since Salisbury is clearly teaching that extenders are useful and that there may be variations in extenders but this in and of itself does not negate Salisbury as a pertinent reference in this case. There are variables but Salisbury makes it clear that the claimed extenders are well known in the art and that to use them is well known.

Art Unit: 1654

Appellant argues also that there is no showing in Spaulding of actually achieving even a single fertilization of any egg, but it is clear on column 5, lines 4-12 of Spaulding that such fertilization is clearly contemplated. Further, it is clear from Salisbury that fertility was achieved, see for example, at page 465, Table 16-10.

For the above reasons, it is believed that the rejections should be sustained.



Respectfully submitted,

MICHAEL V. MELLER
PATENT EXAMINER

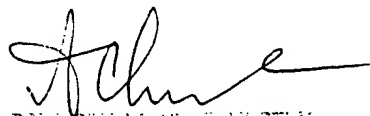
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